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ANCIENT ROMAN CURB BITS

BY ROBERT EMMONS LEE

[Visiting the Museo Nazionale at Naples in 1896, I noticed among the *Piccoli bronzi* a form of bit which I had not seen described. It struck me at once that this was intended for a curb bit in the modern sense: i. e. a bit of such a nature that it gave a leverage upon the lower jaw of the horse not unlike the action of the modern curb bit. The peculiar form, especially the curve in the branches, could to my mind mean nothing else. I, therefore, procured photographs to be made by some persons connected with the Museum and obtained permission to take measurements. Unfortunately in the necessary haste of the proceeding these latter were not so complete as I should have desired; but as it proved they were sufficient for the purpose in view, namely, to establish the fact that the Romans used bits of this general character and to show how they operated. The bits were numbered 120266 and 75572 in the Museum Catalogue. Both were found at Pompeii, the first in 1890, and the second at an unknown date. The photographs are here given (Figs. 1 and 2). The important dimensions, as I have them in my note book, are given below in Mr. Lee's report, p. 153.

I at once made a rude model of wood and cardboard to ascertain the direction of the draught of the reins and its effect. This I applied to a picture of a running horse. Of the appearance of the bit thus applied I give a photograph (Fig. 3). This, of course, had no convincing force, though it confirmed my suspicion, and I determined to investigate the matter further. But, after my return the next year, I had no immediate opportunity to work up the observations. The next year, however, thereafter (1898-99), having a course in Harvard University on the Private Life of the Romans, I gave to one of my pupils, (who was accustomed to horses and fond of their management,) Mr. Robert Emmons Lee, the notes and photographs to treat as a 'thesis' in that subject, suggesting to him my own ideas on the matter and requesting him to put these ideas to the test of actual use in the management of horses. He undertook the work with enthusiasm and the test proved more satisfactory than I had expected, showing conclusively, as it seems to me, that in this case at least, the Romans, besides the savage contrivances well known to have been attached to

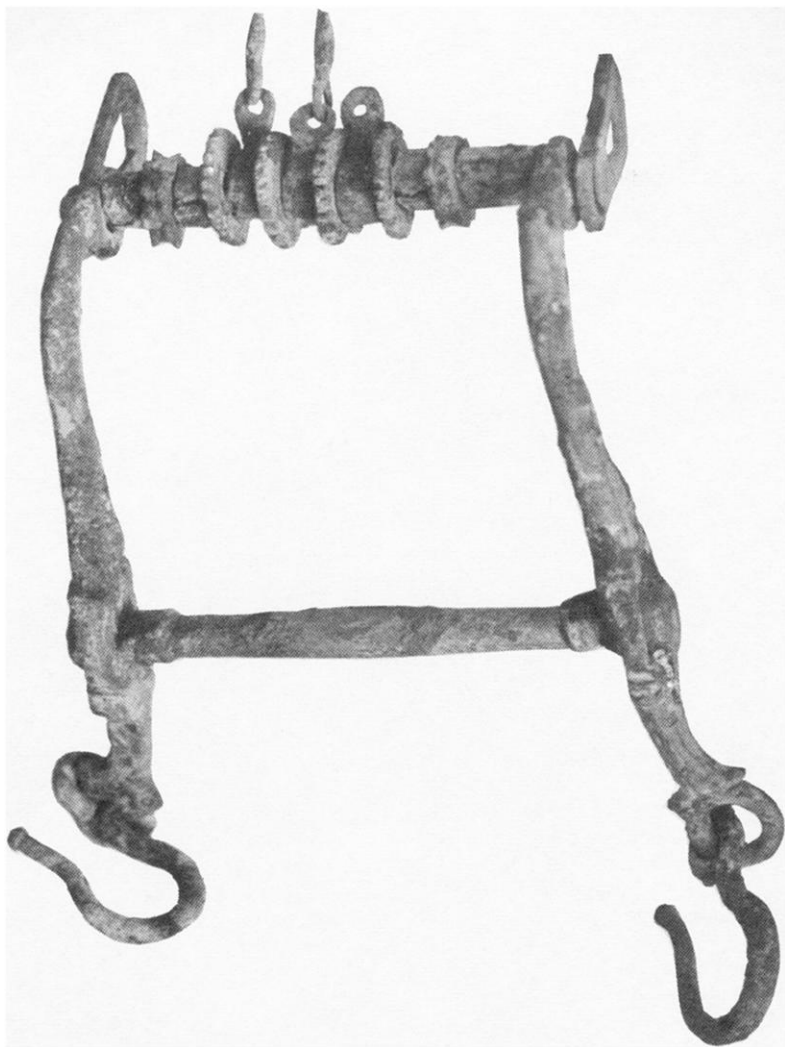


FIGURE 1.

their bits, used also a real curb in the modern sense with leverage for effect on the jaw. This view has often been opposed by students of the subject and by myself until I caught sight of these two bits.

Mr. Lee's report is here presented as given for a thesis in the course above mentioned. The photographs which he took of the bit in action are here given together with other representations for comparison. — J. B. GREENOUGH.]

THERE seem to have been two general types of bit among the Greeks and Romans; the straight bar, and the snaffle or jointed bit. To judge from the remains, the latter was probably the more common. Disks, τροχοί, and sharp little points, ἐχῖνοι, were often put on the bit, probably to keep the horse's mouth partly open, and to prevent him from seizing the bit between his teeth. The bit was kept in position by branches somewhat like those which we have at present on many of our riding bridles, but of several different forms. The most common were long and slightly curved. On the monuments and in the remains that have come down to us, however, we find branches made in the form of triangles, half circles, the letter S, and so forth; while others are more complicated, being in the form of horses or other animals. The cheek-piece of the bridle was divided part way down into two straps which were attached to the lower or inner, and upper or outer part of the branch respectively, while the reins were fastened to rings directly connected with the bit at its ends. This was a very old arrangement and is well seen on many Assyrian monuments and Greek vases. For an Assyrian representation, see the monument of Assurbanipal hunting wild asses, a cut of which is in Dr. M. H. Morgan's *Art of Horsemanship by Xenophon*, p. 145; and for representations from Greek vases see the *Archäologische Zeitung*, XLIII, taf. 11, Panofka's *Bilder Antiken Lebens*, I, 5, and Gerhard's *Auserlesene Vasenbilder*, IV, 247, or Dr. Morgan's book referred to above, pages 20, 23, and 27 respectively. The reins, being attached directly to the mouth piece, and not to the branches of the bit, gave no sort of leverage; and no high pressure, such as is exerted by our curb bits, could be obtained. A bit of very complicated structure as to the branches, which was found recently at Barbarano, is described and figured in *Notizie degli Scavi di Antichità*, 1897, pp. 137-146; but its mechanism does

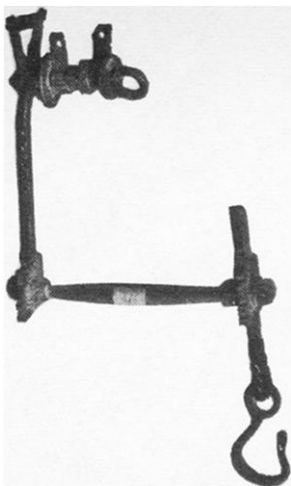


FIGURE 2.

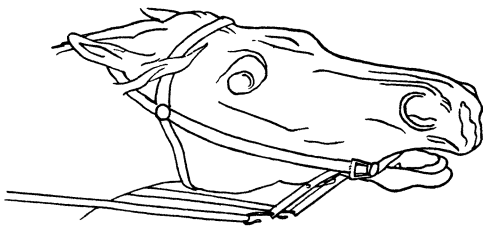


FIGURE 3.

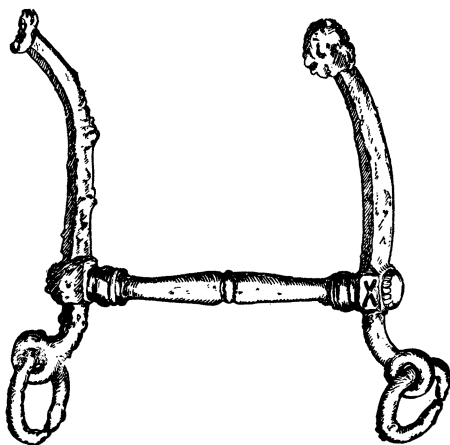


FIGURE 6.

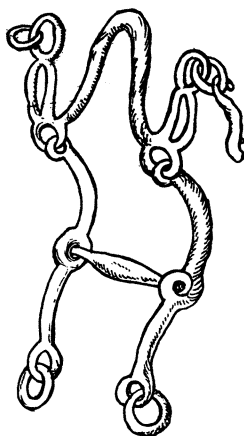


FIGURE 7.



FIGURE 8.

not differ in principle. A well known form figured in *Bull. de Corr. Hellénique*, 1890, p. 386, is referred to for comparison. But, it is universally agreed, none of these are curb bits in our sense.

In the Naples Museum, however, as reported to me by Professor Greenough, are two bits which must have acted on a different principle from the ancient bits above described, and which seem to point to the conclusion that curb bits were used by the Romans. One of these, No. 120266 (see Fig. 1), is in practically perfect condition. The branches, instead of stretching in both directions from the mouth piece, go only in one, and about two-thirds of the way down there is a cross bar. The mouth piece is easily identified by the four τροχοί, the two disks of ἐχῖνοι, and the two small pendants, which were used, probably as we use them now, to keep a horse from lolling, or sticking his tongue out of his mouth. At the ends of the branches are two hooks where the reins were attached, probably by rings, and at each side of the mouth piece an attachment to which the bridle was fastened. The mouth piece passes through the ends of the branches and revolves freely within them. The distance from the centre of the mouth piece to the centre of the cross bar is $3\frac{3}{4}$ inches, and from the cross bar to the ends where the hooks are attached, $2\frac{1}{2}$ inches. The length of the mouth piece is $4\frac{7}{8}$ inches, while the length of the cross bar is $5\frac{1}{2}$ inches. Near the mouth piece the branches have a curve of about an inch.

The other bit, No. 75572 (see Fig. 2), is not in so good condition as the first; but, fortunately, enough is preserved to give us its form and measurements. Unlike the other it is a snaffle bit, but otherwise it is practically the same, with the exception of the hook, which turns toward the side instead of to the front. The distance from the centre of the snaffle to the centre of the cross bar is $4\frac{3}{8}$ inches, and from the cross bar to the end where the hook is attached, 2 inches. The length of the half of the snaffle which remains is $2\frac{1}{4}$ inches, which would make the whole mouth piece originally $4\frac{1}{2}$ inches; and the length of the cross bar is $4\frac{7}{8}$ inches. In this bit the curve at the mouth piece is also about an inch.

After studying these bits it seemed likely, as suggested by Mr. Greenough, that they might act on the principle of our modern curb bit, with the cross bar taking the place of our curb chain, and working

as a fulcrum in place of the chain. The only question was, would the cross bar touch the horse's cheek bones, and, if so, would it not be too far up to act as a fulcrum (see Fig. 4)? Taking the measurements of the first bit described, No. 120266, I had a model made, but without the *τροχοί* and *ἐχῖνοι*, which seemed to be needless details, as the action of the bit would evidently be the same without them. In making it, the smith, unfortunately, followed a rough model, which I had first made from lead and brass, more closely than the photograph which I gave him, so that the copy does not present as finished an appearance as I could wish, although the measurements are correct. The hooks were of great help in showing which way the bit should go in the mouth, as the curve of the branches made the difference of about an inch in the place where the cross bar hit the cheek bones. If the bit had been placed in the mouth so that the convex side of the curve faced front instead of back, the cross bar would have come higher up and would then have exerted less leverage, although still enough. The hooks, however, showed that the curve went back, otherwise the rings attached to the reins would easily have slipped from the hooks. I tried the bit several times, and found that it acted as a perfect curb, the cross bar touching the under part of the cheek bones in such a position that, when the reins were pulled back, it furnished a very powerful leverage on the horse's jaw (see Fig. 5). If used with very much force, and very quickly, I think it would break the cheek bones. The bit moves very easily, owing to the fact already stated that the mouth piece, with the square rings serving to attach it to the cheek-pieces, revolves in the branches; or, what amounts to the same thing, if the mouth piece is held stationary, as it is by the cheek-pieces of the bridle, the branches will revolve round that.

In order to satisfy myself that the size of the horse made no difference in the working of the bit, I tried it on a small pony and found that it worked practically as well.

In the Vienna Museum there is a bit, described by Ed. von Sacken in the *Jahrbuch der Kunsthist. Samml. des A. H. Kaiserhauses*, I, p. 48 (see Fig. 6), which closely resembles those in the Naples Museum. It was found at Pingente, a few miles southeast of Trieste, in 1866. It evidently dates from about the time of Antoninus Pius or later, for several coins of his reign were found near it in the ruins. The mouth

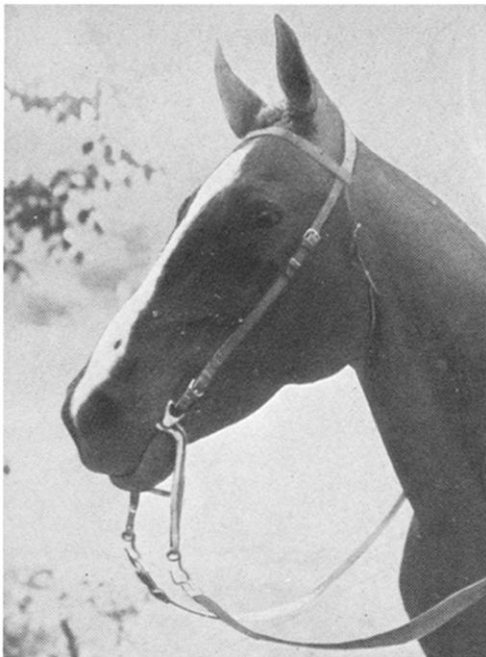


FIGURE 4

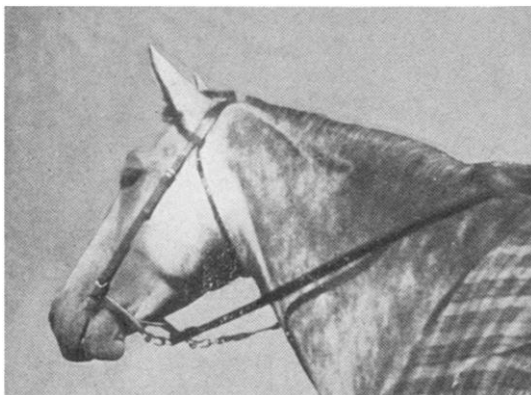


FIGURE 5.

piece is missing, but otherwise it is like the Naples bits, with the exception that rings are used at the end of the bit instead of hooks. In describing the bit, Ed. von Sacken says: "Bei dem Stangenzaum von Pingente ist die Stange 11 Ctm. lang (bei den heutzutage üblichen beträgt die Länge derselben 11-13 Ctm.), in der Mitte etwas dicker, ebenso an beiden Enden, wo die Verstärkungen gegliedert sind. Die Zugstangen sind vierkantig, 10 Ctm. lang, mit Oehren am Ende zur Aufnahme der Zügelringe; die beweglichen Ringe für die Kopfzäumung befinden sich in den Oehren kurzer, ausgebogener Stangen." Although von Sacken recognizes in this bit a different principle from the ordinary one, and thinks that it might have been a curb, yet, according to this statement, he evidently thinks that the cross bar was the mouth piece, that the two rings were used to hitch the bit to the bridle, and that the sockets at the ends were to hold rings for the reins. When we look at it closely, however, it does not seem probable that a mouth piece would be so finely finished as this cross bar is. Besides, there are no τροχοί and ἐχίνοι, which are usually, although not always, found on the bits. Again, there is about the same curve to this bit as to those at Naples. The rings are probably merely a simpler form than the hooks, to which the reins by means of rings had to be attached. On the whole it seems likely that this bit is of the same kind as those in the Museum at Naples.

Another bit in the Naples Museum (see Fig. 7), figured in Ceci's *Piccoli Bronzi del Mus. Naz. di Napoli*, 2d ed., Pl. VII, fig. 48, is somewhat like those already described with the exception of what I think is the mouth piece. It is described by Ceci as a "bride et mors," but the upper part does not seem to be part of the bridle. It is more probable that it is a mouth piece, something like our "spoon bits," which are used on very hard mouthed horses. When much pressure is used the "spoon" strikes the roof of the horse's mouth, and forces the mouth open. The cross bar is the only other part which could be used as the mouth piece, and, like the Vienna bit, it seems of too fine workmanship for that use, besides lacking the τροχοί and ἐχίνοι. If the mouth piece is a "spoon bit," however, it would not need the τροχοί, its action being so dissimilar to the usual bits. The lower part would act in just the same way as in the bits already described. We often use a "spoon bit" in connection with a curb.

Representations of the bit on monuments seem to be rare. Fig. 8 shows a bit on a horse from Trajan's column (taken from Froehner's *Colonne Trajane*, pl. 44 ; see also pl. 61 and Vol. IV, pl. X) that may be like the Naples bits, although it does not actually show the cross bar in the representation.

We have then the remains of four bits which seem to act on a different principle from any other ancient bits known, — namely that the reins were attached to the ends of the branches instead of to the mouth piece direct. One might object that the cross bar was used simply for the purpose of strengthening, but if so, why was it not placed lower so as not to strike the cheek bones when the rider pulled on the reins, and again what advantage could there be in the peculiar curve at the mouth piece? At any rate, in striking the cheek bones, it did act as a fulcrum in the same manner as does the chain on our modern curb bits. It seems perfectly safe then to draw the conclusion that, although we have no literary evidence for it, the Romans did use a curb bit of substantially the same form as our model.

[Still more recently, the present year, in another course on the Private Life of the Romans, I gave the subject to another pupil, Mr. Wm. Edmunds, for a further trial on other kinds of horses, particularly on an unbroken mustang. He reports to me that he "made numerous trials" (of Mr. Lee's model) "on various kinds of horses, kind tempered and scarcely broken, large and small, and also used it for driving." He thinks the "curve was intended to be reversed in driving in order to lessen the harshness of the curb." This would not affect the main question except as tending to show that the bit would act as a curb in either position of the branches. He further says :

"The cross bar is no doubt an excellent substitute for the curb chain, the only fault being its tendency to wear the skin from the jaw bone, for that is where it strikes. I think that were sufficient force exerted, one could easily break a horse's jaw.

As the cross bar is now situated, it exerts a tremendous force on the horse's jaw until the horse brings his head in ; after that, however, unless the reins are held perpendicularly over his head, a most awkward and unnatural position, it loses its power. The object, however, of bringing the horse under subjection is accomplished, for no horse can attain any alarming speed with his head in such a position. Thus the bit prevents a runaway."

He continues :

"Let us now see of what practical use it is in breaking a horse. If the horse is of fine spirit, that is, a first-class gentleman's saddle horse, the bit would never do ; for only the lightest and easiest of straight bits are used in the first stages of horse breaking. On a broncho, or mustang, the trial which I made shows that the running and bolting can be broken with the bit, but as for the bucking, it seemed to make him all the worse. The bit is only to be used on a very wild and, I might say, bad-tempered horse, whose spirit you care nothing about. It would ruin a high-strung horse in a very short time.

We find then that the bit works wonders as a curb, and as a coachman remarked to me, 'it is the wickedest one I ever see.'

There is but one possible point which might militate against the curb theory, and that is in the location of the cross bar. The farther from the mouth piece the bar is, the less effective it becomes. The bar of the model strikes on the jaw bone, an unusual place for a curb to strike. Fortunately, with the actual dimensions the bar works on the jaw in such a way as to leave no doubt as to its being a curb. Up to a certain point, the curb, with the slightest pressure forces the horse to yield, but beyond that point it has no effect, as I have stated. The object, however, of the curb is by that time accomplished.

Our modern curb chains act on the fleshy part of the mouth under the lower lip. Now, were this cross bar in the same position as the curb chain of to-day, that is, about one inch nearer the mouth piece than it is, the effect would be much quicker, and at the same time it would do less physical damage to the horse.

In driving, the bit works equally as well, and when reversed, as I suggested, makes or would make, if constructed in a lighter manner, a comfortable and effective driving bit.

It was suggested to me that the bit be patented, made wider and lighter in construction so as to fit any horse, and also made with the cross bar an inch nearer the mouth piece. It was claimed by a number of experienced horsemen that the bit gave excellent opportunities for show both in itself and in its effect upon the horse. The bit could be highly ornamented and chased, and the slightest pressure on the reins would cause a horse to put on a great deal of style. The trials, then, that I made show conclusively that the bit is a curb and a very wicked one." — J. B. GREENOUGH.]